

APPENDIX B: CLEAN COPY OF CLAIMS

26. (Amended) A method of breeding beef cattle to increase the probability of obtaining a progeny head of beef cattle comprising a predisposition for increased carcass or weaning weight, comprising the steps of:

- (a) selecting a first parent head of beef cattle comprising a genetic polymorphism genetically linked to promoter P1 of exon 1A of the bovine growth hormone receptor gene, wherein said genetic polymorphism is associated with increased carcass or weaning weight; and
- (b) breeding said first parent head of beef cattle with a second parent head of beef cattle to obtain at least a first progeny head of beef cattle comprising said polymorphism associated with a genetic predisposition for increased carcass weight or weaning weight.

27. (Amended) The method of claim 26, further comprising selecting said second parent head of beef cattle based on said genetic polymorphism, and/or a second genetic polymorphism, genetically linked to promoter P1 of exon 1A of the bovine growth hormone receptor gene, wherein said genetic polymorphism, and/or said second genetic polymorphism is associated with increased or decreased carcass or weaning weight.

28. The method of claim 26, wherein said genetic polymorphism is further defined as genetically linked to exon 1A of the growth hormone receptor gene.

29. (Amended) The method of claim 26, wherein said genetic polymorphism is further defined as a polymorphism in a portion of the genome of said head of beef cattle corresponding to the nucleic acid sequence of SEQ ID NO:3.

30. (Amended) The method of claim 26, wherein said genetic polymorphism comprises a simple sequence length polymorphism.

31. The method of claim 30, wherein said simple sequence length polymorphism comprises a thymine-guanine dinucleotide repeat.

32. The method of claim 31, wherein said thymine-guanine dinucleotide repeat is further defined as flanked by the nucleic acid sequences of SEQ ID NO. 1 and SEQ ID NO. 2.

33. The method of claim 32, wherein said selecting comprises selecting a head of beef cattle comprising at least 12 copies of said thymine-guanine dinucleotide repeat.

34. The method of claim 32, wherein said selecting comprises selecting a head of beef cattle comprising between about 16 and about 20 copies of said thymine-guanine dinucleotide repeat.

35. The method of claim 32, wherein said selecting comprises selecting a head of beef cattle comprising less than 12 copies of said thymine-guanine dinucleotide repeat.

36. The method of claim 30, wherein said selecting comprises PCR.

37. The method of claim 30, wherein said selecting comprises gel electrophoresis.
38. The method of claim 37, wherein said selecting comprises identifying specific amplification products by size.
39. The method of claim 26, wherein one or both of said first parent head of beef cattle and said second parent head of beef cattle is further defined as a *Bos indicus* head of beef cattle.
40. The method of claim 26, wherein one or both of said first parent head of beef cattle and said second parent head of beef cattle is further defined as a *Bos taurus* head of beef cattle.
41. (Amended) The method of claim 26, wherein said genetic polymorphism is further defined as a restriction fragment length polymorphism, simple sequence length polymorphism, amplified fragment length polymorphism, single nucleotide polymorphism or isozyme.
42. (Amended) The method of claim 26, wherein said genetic polymorphism is associated with increased carcass weight.
44. (Amended) The method of claim 26, wherein said genetic polymorphism is associated with increased weaning weight.
46. The method of claim 26, wherein said first parent head of beef cattle is the sire and said second parent head of beef cattle is the dam.
47. The method of claim 26, wherein said first parent head of beef cattle is the dam and said second parent head of beef cattle is the sire.
48. The method of claim 26, further defined as comprising crossing said progeny head of beef cattle with a third head of beef cattle to produce a second generation progeny head of beef cattle.
49. The method of claim 26, further defined as comprising repeating step (a) and step (b) from about 2 to about 10 times.
50. (Amended) The method of claim 49, wherein said first parent head of beef cattle is selected from a progeny head of beef cattle resulting from a previous repetition of said step (a) and said step (b) and wherein said second parent head of beef cattle is from a selected cattle breed into which one wishes to introduce said genetic predisposition for increased carcass or weaning weight.